# A New Species of *Adenocalymma* Martius ex Meisner (Bignoniaceae) from Minas Gerais, Brazil

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ABSTRACT. A new species is presented for the genus *Adenocalymma* (Bignoniaceae tribe Bignonieae). *Adenocalymma magnoalatum* Scudeller occurs in the Parque Estadual do Rio Doce, Minas Gerais, Brazil. Its subcoriaceous blades and secondary veins raised and yellow below, a quadrangular ovary, and especially the 4-alate fruit and convex, bi-alate seeds compressed on the back distinguish the species.

RESUMEN. Se presenta una nueva especie para el género *Adenocalymma* (Bignoniaceae tribu Bignonieae), *A. magnoalatum* Scudeller, del "Parque Estadual do Rio Doce," Minas Gerais, Brasil. La especie se caracteriza por sus hojas subcoriáceas y venas secundarias elevadas y amarillas en el envés, un ovario cuadrangular y especialmente por el fruto 4-alado y las semillas convexas y bi-aladas comprimidas dorsalmente.

The etymology of *Adenocalymma* Martius ex Meisner is complex. The name is a compound of adenos (*αδενος* f. = glands) and calymma (*καλυμμα* n. = head-covering); these characteristics are found in almost all species of the genus. Meisner (1840) published the original description of the genus with the spelling *Adenocalymna*. However, Endlicher (1841) used the spelling *Adenocalymma*. As a result, two different spellings of this name still persist. Scudeller (2000) proposed the conservation of the *Adenocalymma* spelling, based both on what appears to be Meisner's own correction (1843), to the index of his original description, and Bureau (1872). Bureau pointed out that the original spelling used by Meisner (in his original description) was wrong and commented, "J'ai vu plus de dix étiquettes de la main de Martius, toutes rédigées conformément à l'étymologie grecque, et dans l'*Enchiridion* d'Endlicher, qui a paru en 1841, on trouve le même nom cité sous la forme correcte: ADENOCALYMMA" (Bureau, 1872: 19–20).

The genus *Adenocalymma* is represented by approximately 60 species (Mabberley, 1997). It is distributed in tropical America, from Mexico and the Lesser Antilles to Uruguay and northeast Argentina (Bureau & Schumann, 1896–1897; Sandwith & Hunt, 1974). It is characterized by branchlets terete, tendril simple, leaves entire, raceme axillary, bracts usually conspicuous but caducous, calyx with conspicuous black patelliform glands on the outer side, corolla tubular, bright yellow, either wholly tomentose or pubescent, very rarely wholly glabrous outside, 4 fertile stamens, 1 staminode, anther 2-divaricate, stigma 2-lamellate, and fruit capsule septifragal.

In this paper, a new species is presented from the Parque Estadual do Rio Doce, in the State of Minas Gerais, Brazil. The Parque Estadual do Rio Doce is located between 42°38′30″–48°28′18″W and 19°48′18″–19°29′24″S, encompassing the municipalities of Timóteo, Marliéria, and Dionísio, comprising an area of approximately 36,000 ha (Instituto Estadual de Florestas, 1994).

**Adenocalymma magnoalatum** Scudeller, sp. nov. TYPE: Brazil. Minas Gerais: Marliéria, Parque Estadual do Rio Doce (PERD), estrada do Restaurante, 10 Oct. 1996, *V. V. Scudeller 579* (holotype, VIC; isotype, MO (fr only)). Figure 1.

Haec species *A. paulistaro* Bureau & K. Schumann et *A. duseni* Kraenzlin affinis, sed ab eis calyce et corolla extus tomentosis, ovario 4-angulari, capsula oblonga, 4-alata glandulis pateliformibus in alis et seminibus alatis differt.

Liana. Branchlets elliptic to terete, lenticels abundant, without interpetiolar glandular fields; pseudostipules oblong-elliptic to linear, 0.7–1.0 × 0.1–0.3 cm, glabrous, with 1–3 patelliform glands at midpoint, persistent. Leaves opposite, brochidodromous, bifoliolate; tendrils simple; petioles 2.1–3.2 cm long, terete, with prominent lenticels; petiolules 2.6–4.1 cm long, terete; blades 11.4–17.0 × 4.5–7.7 cm, oblong-elliptic, chartaceous, glabrous above, densely lepidote below, base asymmetric, apex acuminate, margins revolute; primary veins straight, immersed above, prominent and yellowish below; secondary veins 8 to 10 pairs, moderate acute (angle of divergence = 55°), yellowish when dry. Inflorescence 5.95–14.27 cm long, 5–8 pairs of flowers, axillary racemiform, bracts and bracteoles 0.2–0.5 × 0.1–0.2 cm, linear, caducous,

without patelliform glands; calyx green, tubular, 5-denticulate, 0.9–1.1 × 0.6–0.8 cm, tomentose outside, patelliform glands toward apex, margins villose; corolla yellow, tubular-infundibuliform, with 5 lobes, mucronulate, symmetric, basal tube (ca. 1.2 cm) glabrous, toward apex tomentose outside, glabrate inside except lobes tomentose on both faces, corolla tube 4.2–5.4 × 1.5–1.9 cm, lobes 1.3–1.7 × 1.5–1.7 cm, mucronulate; stamens epipetalous, didynamous, included, longest pair 2.0–2.5 cm long, shortest pair 1.4–1.5 cm long, villose at the level of filament insertion, with capitate glandular trichomes, staminodes inconspicuous, anthers glabrous, 0.6–0.7 cm long, with thecae divergent, connective slightly prolonged, apiculate; ovary narrowly lanceolate, quadrangular, ca. 0.7 × 0.1 cm, glabrous, bilocular, ovules biseriate in each locule, style terete, ca. 3.6 cm long, stigma evenly 2-lamellate, with the lamellae oblong, 0.23 × 0.11 cm; nectar disc annular-pulvinate, ca. 0.2 × 0.1 cm. Capsule septifragal oblong, 4-alate, 21.7 × 4.9 cm, midribs prominent, patelliform glands abundant on the wings; seeds compressed on the back, convex, bi-alate, body 1.4–1.8 × 1.3 cm, wings hyaline-membranaceous, 1.6–1.7 × 1.3 cm each.

*Distribution and habitat.* *Adenocalymma magnoalatum* is known only from the type locality, Parque Estadual do Rio Doce, occurring in its Southwest area. This forest in the Parque Estadual do Rio Doce represents one of the last remnants of the Atlantic Rain Forest under legal protection in Minas Gerais. The species extends into the forest canopy.

The new species is related to the species group with linear pseudostipules, conspicuous glands in the calyx, subcoriaceous blades, and secondary veins raised and yellowish below. Similar species are *A. bracteatum* DC., *A. comosum* DC., *A. duseni*, *A. hatschbachii* A. H. Gentry (calyx eglandular), and *A. paulistarum*.

*Adenocalymma magnoalatum* is characterized by the mucronulate corolla lobes and quadrangular ovary, and is especially distinguished by the 4-alate fruit with well-developed veins and winged seeds.

*Adenocalymma bracteatum* is characterized by its tomentose calyx and bracts as long as buds, and it also occurs in the Parque Estadual do Rio Doce (Scudeller & Carvalho-Okano, 1998). This species is easily distinguished from the new species by shorter leaves (7.3–9.7 × 2.6–4.8 cm), ovary terete, and bracts concave. *Adenocalymma comosum* has the calyx glabrous. *Adenocalymma hatschbachii* differs from *A. magnoalatum* by the leaflets lanceolate, long acuminate and the calyx eglandular or with few inconspicuous glands. *Adenocalymma duseni* presents the petiolule longer than the petiole and leaflets ovate-lanceolate as in *A. hatschbachii*. Gentry (1993) distinguished the latter species by larger bracts and bracteoles, the usual presence of conspicuous calyx glands, thicker distinctly coriaceous leaves, and the corolla more infundibuliform-campanulate with included anthers.

In the absence of fruit, *A. magnoalatum* can be confused with *A. paulistarum* and *A. duseni*, with leaves with yellow veins when dry, bracts caducous, and corolla recurved. However, *A. magnoalatum* is distinguished from those by the petiolule usually longer than the petiole, the oblong-elliptic leaf blade with 8 to 10 pairs of secondary veins, and the quadrangular ovary.

The Parque Estadual do Rio Doce was visited monthly from September 1995 to February 1997 (Scudeller & Carvalho-Okano, 1998). *Adenocalymma magnoalatum* was found flowering only between January and March 1996, and in October 1996. It follows the phenological pattern *multiple bang* (see Gentry, 1974), with two or more flowering peaks annually. Despite this phenology, seed dispersal was only observed at the end of October, concomitant with one of the annual flowering peaks. According to Scudeller and Carvalho-Okano (1998), all other species of *Adenocalymma* flower at the same time (March and October), but only *A. bracteatum* can be mistaken for *A. magnoalatum* (see above).

As found in the literature, most *Adenocalymma* species occurring in Brazil and surrounding countries have a cylindrical or a slightly dorsiventrally flattened fruit. Only three species, *A. gracielzae* A. H. Gentry, *A. apurense* (HBK) Sandwith, and *A. purpurascens* Rusby, occurring in the north of Brazil and in Central America present a winged fruit.

*Adenocalymma gracielzae* differs from *A. magnoalatum* by the dorsal vein of the capsule being inconspicuous; the capsule having a puberulous and grooved surface; and the seeds being quadrangular but unwinged. Although *A. apurense* presents a slightly winged fruit, its seeds possess a larger seed body and narrow lines. In spite of the superficial similarity of the fruit, this new taxon differs from *A. purpurascens* by the shape of the leaves (ovate and very thick) and the bracts (as long as the buds and broadly ovate).

*Paratypes.* BRAZIL. **Minas Gerais:** Marliéria, Parque Estadual do Rio Doce, estrada da Campolina, 24 Jan. 1996 (fl), *V. V. Scudeller 187* (PERD, VIC), 24 Jan. 1996 (fl), *V. V. Scudeller 191* (RB, VIC); estrada do Restaurante, 25 Jan. 1996 (fl), *V. V. Scudeller et al. 217* (PERD, UEC, VIC), 12 Mar. 1996 (fl), *V. V. Scudeller 232* (PERD, VIC); estrada do Porto Capim, 10 Oct. 1996 (fr), *V. V. Scudeller 574* (RB, VIC); estrada do Restaurante, 15 Oct. 1996 (fl), *V. V. Scudeller 594* (MO, SPF, VIC).

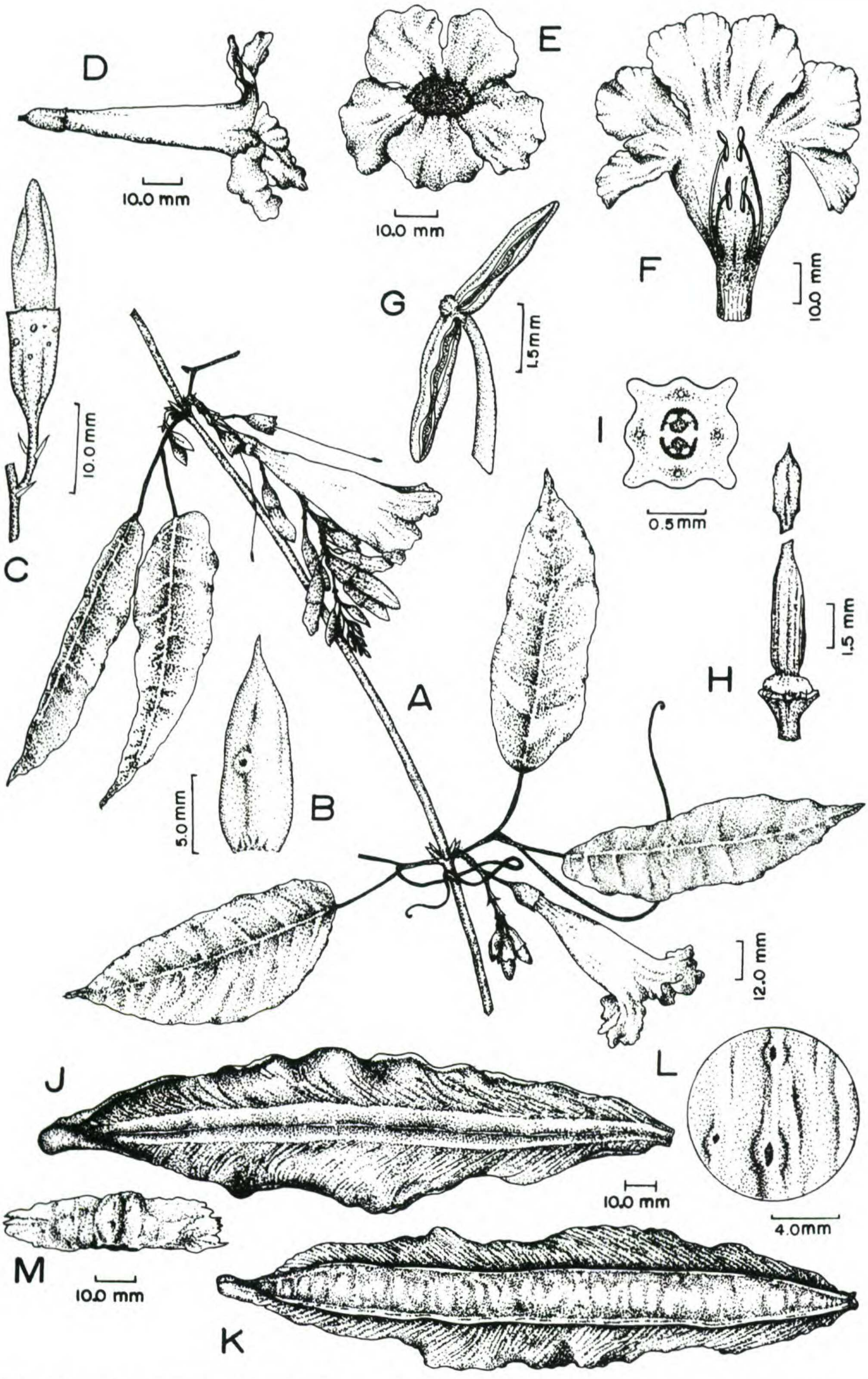


Figure 1. *Adenocalymma magnoalatum* Scudeller. —A. Flowering branch. —B. Pseudostipule with patelliform gland at midpoint. —C. Bud showing bracts and bracteoles inconspicuous and calyx with patelliform glands. —D. Lateral view of the flower. —E. Frontal view of the flower. —F. Longitudinal cross section through corolla, showing the

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epipetalous insertion of the stamens. —G. Details of the anther. —H. Gynoecium showing nectar disc, ovary, and stigma (style not shown). —I. Transversal cross section through ovary at midpoint. —J. Fruit, external view. —K. Fruit, internal view. —L. Detail of fruit wing showing patelliform glands. —M. Seed, showing two wings. (*V. V. Scudeller 579.*)